

LASER ASSISTED FREE-FREE TRANSITION IN ELECTRON – ATOM COLLISION

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Free-free transition is studied for electron-Hydrogen atom system in ground state at very low incident energies in presence of an external homogeneous, monochromatic and linearly polarized laser field. The incident electron is considered to be dressed by the laser in a non perturbative manner by choosing the Volkov solutions in both the channels. The space part of the scattering wave function for the electron is solved numerically by taking into account the effect of electron exchange, short range as well as of the long range interactions. Laser assisted differential as well as elastic total cross sections are calculated for single photon absorption/emission in the soft photon limit, the laser intensity being much less than the atomic field intensity. A strong suppression is noted in the laser assisted cross sections as compared to the field free situations. Significant difference is noted in the singlet and the triplet cross sections.